

Optical mirror elements for high bandwidth free space optical communication are produced by an electroforming replication technique. Onto the precision surface of a mandrel that is a negative of the required optical surface a layer of metal is deposited forming an exact copy of the mandrel surface and is then separated to form the required optical element. During the production process the mandrel may be coated with a variety of materials that are then separated together with the electroformed optical element during the release step to form a monolithic structure that includes a reflective coating. The mandrel remains unchanged by the process and can then be re-used. The high cost of conventional polishing techniques is therefore limited to the production of the mandrel. The replication process results in the production of low cost optical elements suitable for high bandwidth free space optical data transmission.